LUNAR INTERNATIONAL SCIENCE COORDINATION/CALIBRATION TARGETS.

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A new era of international lunar exploration has begun and will expand over the next four years with data acquired from at least four sophisticated remote sensing missions: KAGUYA (SELENE) [Japan], Chang'E [China], Chandrayaan-1 [India], and LRO [United States]. It is recognized that this combined activity at the Moon with modern sophisticated sensors will provide unprecedented new information about the Moon and will dramatically improve our understanding of Earth's nearest neighbor. It is anticipated that the blooming of scientific exploration of the Moon by nations involved in space activities will seed and foster peaceful international coordination and cooperation that will benefit all.

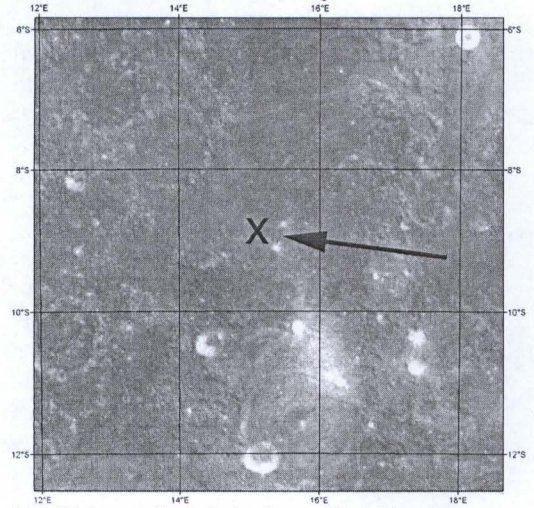
Summarized here are eight Lunar International Science Coordination/Calibration Targets (L-ISCT) that are intended to a) allow cross-calibration of diverse multi-national instruments and b) provide a focus for training young scientists about a range of lunar science issues. The targets, discussed at several scientific forums, were selected for coordinated science and instrument calibration of orbital data. All instrument teams are encouraged to participate in a coordinated activity of early-release data that will improve calibration and validation of data across independent and diverse instruments.

As a whole, the small group of targets also provides a good introduction to lunar science. The process of understanding the character of these few areas is intended to educate and spark a desire to explore further with the more extensive data produced by the various missions. These few targets provide a common starting point for much discussion and comparison among the science community and for the public to become reintroduced to the mysteries and excitement of lunar exploration.

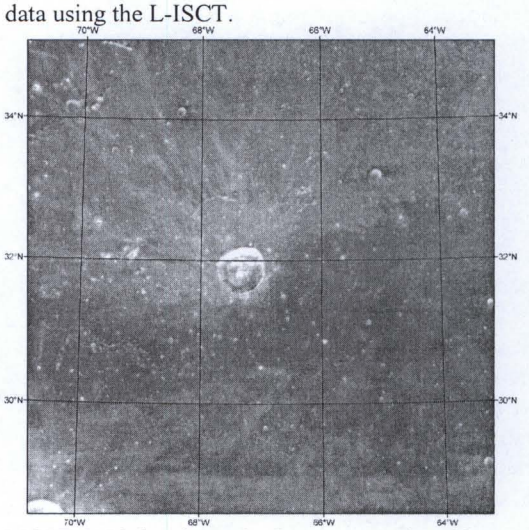
Table 1. Center coordinates of the eight L-ISCT sites.

L-ISCT	Longitude (E)	Latitude
1. Apollo 16 Highlands	*15.5*	*-9.0*
2. Lichtenberg rim	*293.0*	*31.5*
3. Apollo 15 (Hadley Rille)	*3.7*	*26.1*
4. SPA NW-N	*175.5*	*-30.5*
NW-S	*165.0*	*-41.0*
5. Tycho	*348.8*	*-43.3*
6. Polar Shadows	118.0	-84.0
7. N. Schrödinger	135.0	-72.4
8. Mare Serenitatis (MS2)	21.4	18.7

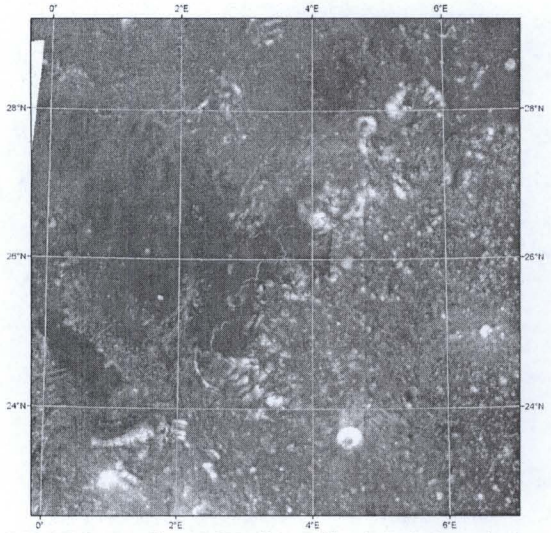
The eight L-ISCT targets were selected to meet several criteria for coordinated or repeated measurements [discussed in Pieters et al., COSPAR *in press*]. A few targets are relatively homogeneous, while others exhibit diversity in morphology, composition, etc. All are approximately 200x200 km in dimension to allow instruments with different spatial footprints to be cross-compared. Since the field of view varies greatly between instruments, it is recommend that instruments with a small footprint target as close to the central portion as is feasible. Although specific calibration steps are unique to each instrument, this limited set of common calibration targets will allow cross validation of instruments using independent information. When L-ISCT data from different instruments are in agreement, confidence in the measurements is high and all teams benefit. If data are not in agreement, possible sources of error can be sought and resolved. For mutual benefit, it is recommended that LISCT data be publicly released soon after initial calibration. Teams are encouraged to establish ties with similar teams on different missions to allow early comparisons (and improvement) of data using the L-ISCT.



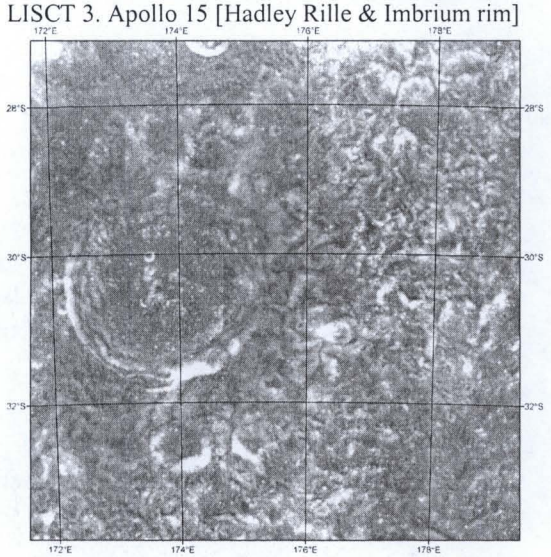
LISCT 1: Apollo 16 site [central highlands]



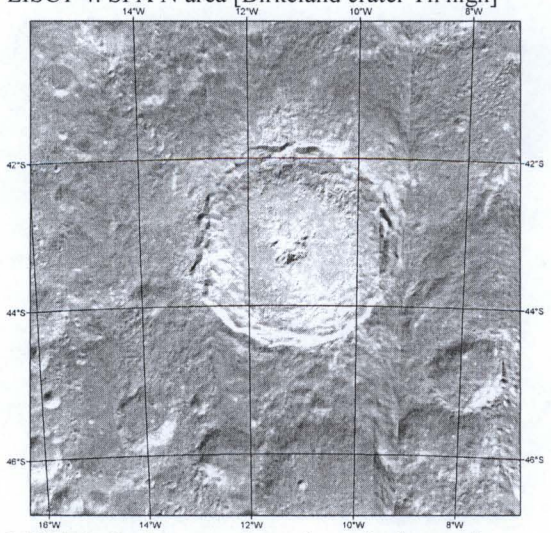
LISCT 2: Lichtenberg rim [young mare basalt]



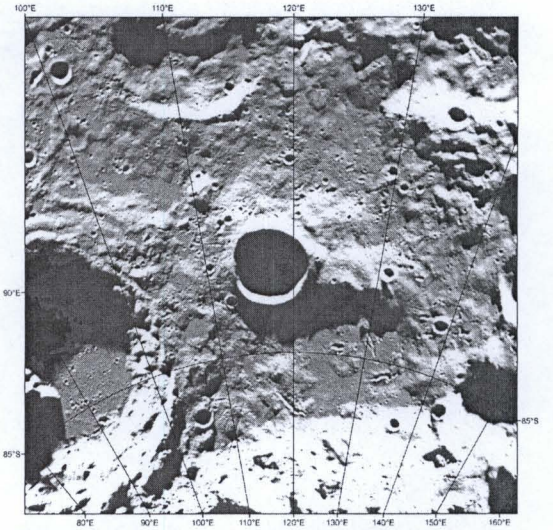
LISCT 3. Apollo 15 [Hadley Rille & Imbrium rim]



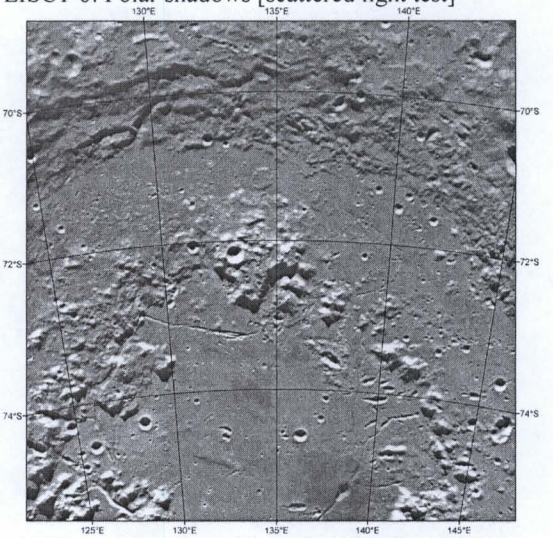
LISCT 4: SPA N area [Birkeland crater Th high]



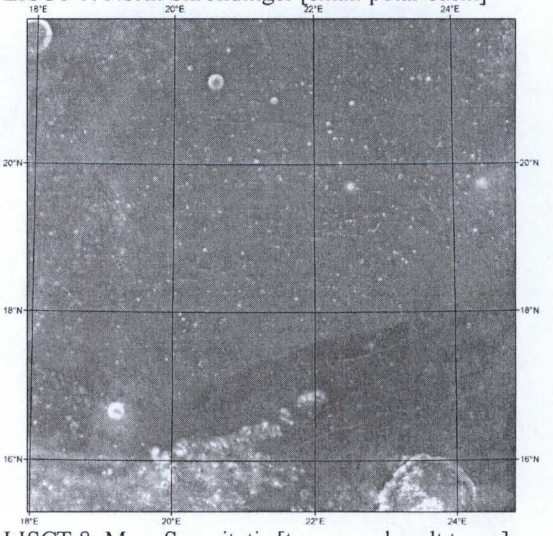
LISCT 5: Tycho crater [prominent fresh crater]



LISCT 6: Polar shadows [scattered light test]



LISCT 7: North Shröndinger [small polar basin]



LISCT 8: Mare Serenitatis [two mare basalt types]